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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,498	05/10/2004	Heng-Chia Chang	86488.00003	3497
30256 7590 05/01/2007 SQUIRE, SANDERS & DEMPSEY L.L.P PATENT DEPARTMENT ONE MARITIME PLAZA, SUITE 300 SAN FRANCISCO, CA 94111-3492			EXAMINER DEAN, RAYMOND S	
			ART UNIT 2618	PAPER NUMBER
			MAIL DATE 05/01/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/709,498

Applicant(s)

CHANG, HENG-CHIA

Examiner

Raymond S. Dean

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 0504, 0105.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 3, 5 – 8, 10 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lakkis (US 2005/0069021) in view of Kintis et al. (US 2001/0011930).

Regarding Claims 1, 13, Lakkis teaches a method of generating a UWB pulse train signal, comprising: modulating a data signal into a pulse train signal (Section 0014, See Also Novelty); splitting the modulated pulse train signal into a first and a second signal (Section 0014, See Also Novelty, the serial data stream, which comprises the UWB pulses, is split into parallel data streams); phase shifting the first signal (Section 0014, See Also Novelty, a phase of at least one of the data streams is shifted); combining the phase shifted signal and the second signal; and filtering out negative or positive amplitudes of the combined signal (Section 0014, See Also Novelty, the equalization enables the filtering out of the negative or positive amplitudes).

Lakkis does not teach phase shifting the first signal 180 degrees.

Kintis teaches phase shifting the first signal 180 degrees (Section 0015).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the phase shifting method of Lakkis with the above phase shifting method of Kintis for the purpose of generating narrow short duration pulses thus improving the bandwidth of the UWB radio as taught by Kintis.

Regarding Claim 6, Lakkis teaches a UWB signal generator system, comprising: an input clock capable of generating a modulated pulse train signal (Section 0014, See Also Novelty, UWB pulses are generated thus there will be a clock enabling the generation of said pulses, typical UWB generators or transmitters comprise clocks); an output line, communicatively coupled to the input clock, capable of combining the modulated pulse train signal and a phase shifted signal (Section 0014, See Also Novelty, a phase of at least one of the data streams is shifted); and a filter, communicatively coupled to the output line, capable of filtering out negative or positive amplitudes of the combined signal (Section 0014, See Also Novelty, the equalization enables the filtering out of the negative or positive amplitudes).

Lakkis does not teach a grounded line, communicatively coupled to the input clock, capable of phase shifting the modulated pulse train signal 180 degrees.

Kintis teaches a grounded line, communicatively coupled to the input clock, capable of phase shifting the modulated pulse train signal 180 degrees (Section 0015, UWB pulses are generated thus there will be a clock enabling the generation of said pulses, typical UWB generators or transmitters comprise clocks).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the phase shifting method of Lakkis with the above

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phase shifting method of Kintis for the purpose of generating narrow short duration pulses thus improving the bandwidth of the UWB radio as taught by Kintis.

Regarding Claim 2, Lakkis in view of Kintis teaches all of the claimed limitations recited in claim 1. Lakkis further teaches amplifying the filtered, combined signal and transmitting the amplified, filtered, combined signal (Figure 15, the radio transmitter (1514) will comprise some kind of amplification, typically via a power amplifier (PA)).

Regarding Claims 3, 8, Lakkis in view of Kintis teaches all of the claimed limitations recited in claims 1, 6. Kintis further teaches wherein the pulse width of a signal is proportional to a grounded line length that is used to perform the phase shift (Section 0015).

Regarding Claim 5, Lakkis in view of Kintis teaches all of the claimed limitations recited in claim 1. Kintis further teaches wherein the phase shifting is performed by reflecting the first signal in a grounded line (Section 0015).

Regarding Claim 7, Lakkis in view of Kintis teaches all of the claimed limitations recited in Claim 6. Lakkis further teaches an amplifier communicatively coupled to the filter, capable of amplifying the filtered, combined signal (Figure 15, the radio transmitter (1514) will comprise some kind of amplification, typically via a power amplifier (PA)); and a transmitter communicatively coupled to the amplifier, capable of transmitting the amplified, filtered, combined signal (Figure 15, transmitter (1514)).

Regarding Claim 10, Lakkis in view of Kintis teaches all of the claimed limitations recited in claim 6. Kintis further teaches a diode interposed between the grounded line

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and the input clock that prevents bounce back of the phase shifted signal to the input clock (Section 0012 lines 3 – 5).

Regarding Claim 11, Lakkis in view of Kintis teaches all of the claimed limitations recited in claim 6. Lakkis does not teach wherein the filter includes a Schottky diode.

Kintis teaches a Schottky diode (Section 0012 lines 3 – 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Lakkis with the diode of Kintis for the purpose of improving the bandwidth of the UWB radio as taught by Kintis.

Regarding Claim 12, Lakkis in view of Kintis teaches all of the claimed limitations recited in claim 6. Lakkis further teaches a wireless device (Figures 6, 15, Section 0134 lines 4 – 6).

3. Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lakkis (US 2005/0069021) in view of Kintis et al. (US 2001/0011930), as applied to Claims 1, 6 above, and further in view of Fullerton (US 2003/0095063).

Regarding Claims 4, 9, Lakkis in view of Kintis teaches all of the claimed limitations recited in claims 1, 6. Lakkis in view of Kintis does not teach wherein the pulse width is variable according to programmable delays incorporated into a grounded line that is used to perform the phase shift.

Fullerton teaches wherein the pulse width is variable according to programmable delays incorporated into a grounded line that is used to perform the phase shift (Section 0069 lines 12 – 15).



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It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the programmable delay of Fullerton as an alternative means for shaping the pulse in the UWB system


### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond S. Dean whose telephone number is 571-272-7877. The examiner can normally be reached on Monday-Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Raymond S. Dean  
April 3, 2007

  
EDWARD F. URBAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600